SAMPLING AND ANALYSIS PLAN

FOR
SOIL SAMPLING
NEAR
SOLUTIA, INC., SAUGET, ILLINOIS

IN SUPPORT OF
U.S. ENVIRONMENTAL PROTECTION AGENCY REGION 5

UNDER
RCRA ENFORCEMENT, PERMITTING, AND ASSISTANCE (REPA5)
ZONE 2–REGION 5

DOCUMENT CONTROL NUMBER
REPA5-1513-002

EFFECTIVE DATE: September 12, 2014

Booz | Allen | Hamilton

INTRODUCTION

Under the Environmental Protection Agency (EPA) Resource Conservation and Recovery Act (RCRA) Enforcement, Permitting, and Assistance (REPA5) Contract, Task Order R5513, Booz Allen Hamilton (Booz Allen) has been tasked to conduct soil sampling at the Solutia, Inc. (Solutia) facility in Sauget, Illinois (the Site). This site-specific Sampling and Analysis Plan (SAP) has been prepared to document procedures and methods to be used during the soil sampling.

Detailed information about Booz Allen's quality assurance (QA) and quality control (QC) protocols for sampling and analysis activities in Region 5 is presented in the Booz Allen Region 5 Quality Assurance Project Plan (R5 QA Project Plan). This site-specific SAP will not duplicate information provided in the R5 QA Project Plan; it will supplement the plan with information that is specific to this project. Both this site-specific SAP and the R5 QA Project Plan are subordinate to and consistent with the REPA5 Quality Management Plan (QMP). In this manner, Booz Allen provides a comprehensive and consistent environmental QA/QC program with sufficient flexibility to meet the particular requirements of Region 5 and the circumstances of each project.

The REPA5 QMP establishes Booz Allen's quality system for all REPA5 task orders. It outlines our corporate quality policy and describes the overall organization and general approach to quality management for these contracts. The QMP also defines requirements for control of accountable documents and records, provides the strategy for assessing the effectiveness and implementation of the overall quality system, describes the roles of and interrelationships between the various QA/QC plans, and describes how the quality of subcontracted work will be controlled.

This SAP is a sub-tier document to the Booz Allen R5 QA Project Plan, which outlines the general requirements and protocols for environmental sampling and analysis activities performed under REPA5 in EPA Region 5. The R5 QA Project Plan was designed to be compliant with and support the Region's quality management policies as prescribed in *RCRA QAPP Instructions U.S. EPA Region 5*, Revision April 1998. It was also designed to be consistent with *EPA Requirements for Quality Assurance Project Plans* (QA/R-5), *EPA Guidance for Quality Assurance Project Plans* (QA/G-5), *EPA Quality Manual for Environmental Programs (EPA 5360)*, and *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs* (ANSI/ASQC E4-1994). In conjunction with the each task order performance work statement (PWS), the R5 QA Project Plan provides guidance and requirements for developing and implementing site SAPs that are also compliant with these reference documents. In the event of conflicting requirements, the order of precedence will be the contract SOW, this site-specific SAP, the R5 QA Project Plan, and the QMP. All of these documents will take precedence over previously existing QA Project Plans or standard operating procedures (SOP).

ELEMENT 1: TITLE/SIGNATURE PAGE

The following persons approve the contents of this *Sampling and Analysis Plan for Soil Sampling near Solutia, Inc., Sauget, Illinois* and are committed to implementing the provisions described herein:

Yvonne Fernandez (signature/date)
Booz Allen Hamilton PQAM

Allen Wojtas (signature/date)
EPA Region 5 CLCOR

Francie Hodge (signature/date)
Booz Allen Hamilton Task Order Manager

Carolyn Bury (signature/date)
EPA Region 5 Project Manager

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Attachment 1. Figure 1 – Sampling Locations Map
Please attach the Lab SOP

DISTRIBUTION

Booz Allen Region 5 Task Order Manager
EPA Region 5 Technical Lead
EPA Region 5 CLCOR
EPA Region 5 QA Coordinator

ELEMENT 3: PROJECT DESCRIPTION

EPA has tasked Booz Allen to conduct soil sampling and analysis for polychlorinated biphenyl (PCB) Homologs to support off-site soil characterization.

3.1 GENERAL REQUIREMENTS

The responsibility of Booz Allen for this event is to perform soil sampling for PCB homologs on public and private parcels in the City of East St. Louis, east of the Solutia site. The soil sampling will include composite surface soil sampling to characterize off-site migration of PCBs and to determine potential off-site exposures and support the human health risk evaluation. ALS in Rochester, New York (ALS Rochester) will analyze all samples collected in accordance with EPA Method 680 and ALS Rochester's SOPs (EPA Method 680: Determination of Pesticides and PCBs in Water and Soil/Sediment by Gas Chromatography/Mass Spectrometry).

3.2 SITE DESCRIPTION, HISTORY AND BACKGROUND

The Solutia site is located in Sauget, St. Clair County, Illinois and has operated at 500 Monsanto Avenue for nearly 100 years. Solutia has manufactured various organic chemicals derived from benzene, including PCBs. The Solutia W.G. Krummrich Plant was formerly operated by Monsanto, which spun-off its chemical business in 1997. It is located just east of the Mississippi River along Illinois Route 3 in the American Bottom floodplain region.

EPA issued a RCRA 3008(h) Administrative Order on Consent (AOC) on May 3, 2000. On February 26, 2008, EPA issued a Final Decision to remediate soil and groundwater contamination. The $22 million remedy focuses on removing source areas of PCBs, benzene, chlorobenzenes, lead, and mercury potentially impacting workers, contaminating groundwater, and migrating to the Mississippi River.

In 2004, Solutia completed an interim remedy to contain, intercept, and collect contaminated groundwater discharging and causing environmental impacts to the Mississippi River. A groundwater migration control system was installed at the river's edge consisting of a slurry barrier wall keyed into bedrock and groundwater collection wells. Collected groundwater is treated at the American Bottom publicly owned treatment works.

In 2009, EPA collected soil samples from 30 residences and two parks located in Sauget and East St. Louis, Illinois, near the former PCB manufacturing area of the facility. A total of 34, five-point composite surface soil samples were collected and analyzed for PCB homologs. Samples collected from four locations in Sauget and two locations in East St. Louis had PCB concentrations which exceeded the preliminary remediation goal of 1 part per million (ppm).

Subsequently, an air deposition model analysis was completed in January 2011, which correlated the 2009 soil sampling results with estimated emissions from the PCB manufacturing process. The model estimated that PCB concentrations in soil in excess of 1 ppm are potentially present in residential areas of East St. Louis which were not previously sampled.

In August 2012, 10 composite soil samples were collected from residential properties along Wilford Avenue, Falling Springs Road, and Mississippi Avenue, and analyzed for PCBs by Method 680. In addition, nine samples were collected from the northern portion of the former Dead Creek bed, one of which was a composite sample. Analytical results indicted the presence of PCBs and RCRA metals (including arsenic and chromium) in the samples collected from residential soils and the former Dead Creek bed.

3.4 PROJECT OBJECTIVES

The overall project objective for this effort is to further characterize PCB contamination in soil on private and public parcels in the City of East St. Louis located near the Solutia RCRA Corrective Action Site. The additional data collected will be used to ~~develop~~ characterize the extent of contamination and ~~or~~ contribute to a human health risk evaluation for off-site exposures. Sampling activities will include the collection of up to 20 composite surface soil samples from properties located between the facility and locations sampled in 2012. The locations are shown on the attached Figure 1. It is anticipated that the surface soil samples will be collected at a depth of 0-6 inches below surface grade (bgs). Duplicate soil samples and equipment blanks will also be collected. All samples collected will be shipped via FedEx overnight delivery to ALS Rochester, where they will be analyzed for PCBs.

3.5 TARGET PARAMETER LIST

The ALS Rochester will analyze surface soil samples for PCB homologs, which are listed in Table 3-1. The surface soil samples will be collected as five-point composite samples on private and public properties. Sampling and analytical procedures are detailed in Elements 5 and 6 of this SAP.

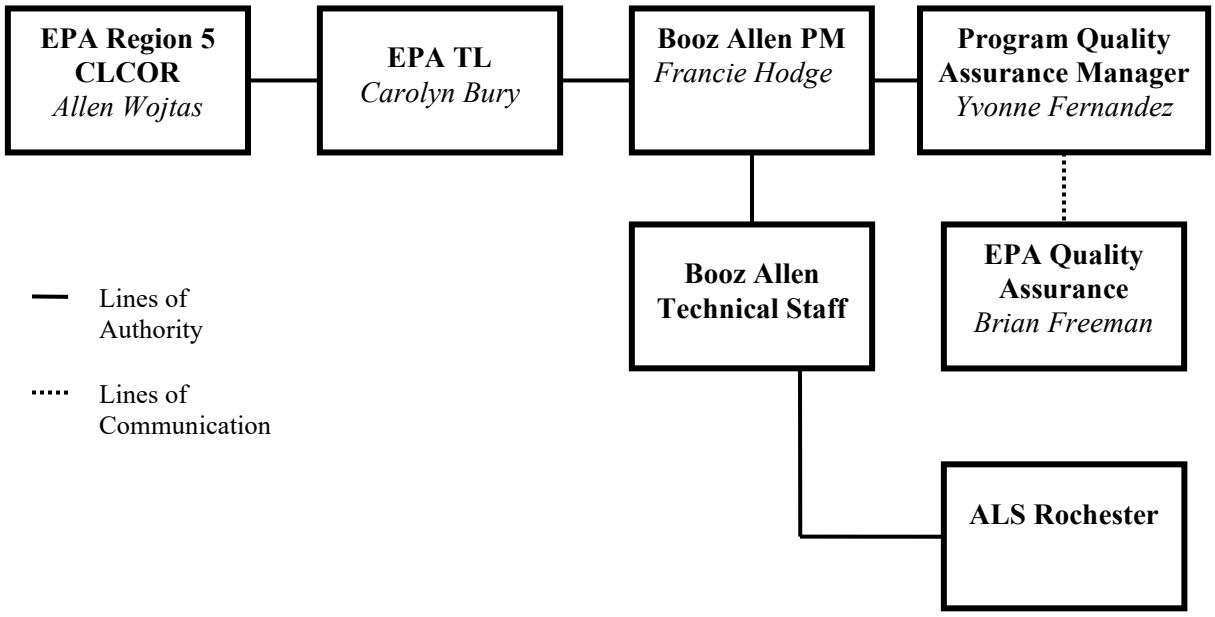
Table 3-1. Target Parameters List

PCBs by EPA Method 680: (Soil)	
Momochlorobiphenyls, Total	Hexachlorobiphenyls, Total
Dichlorobiphenyls, Total	Heptachlorobiphenyls, Total
Trichlorobiphenyls, Total	Octachlorobiphenyls, total
Tetrachlobiphenyls, Total	Nonachlorobiphenyls, Total
Pentachlorobiphenyls, Total	Decachlorobiphenyls, Total

ELEMENT 4: PROJECT ORGANIZATION AND RESPONSIBILITY

This section identifies the individuals and organizations responsible for the planning and execution of field operations to be performed under this SAP. The project organization is depicted in Figure 4-1. The REPA5 QMP and Region 5 QA Project Plan provide a full description of all program-level functions.

Figure 4-1. REPA5 Organization for Project Support



Booz Allen technical staff members are responsible for collecting soil samples. Booz Allen technical staff will ship all samples collected during the fieldwork via FedEx overnight shipping to ALS Rochester. ALS Rochester will be responsible for analyzing all samples delivered.

4.1 SPECIAL TRAINING/CERTIFICATION

Booz Allen personnel will be trained and certified as prescribed in the QMP. Booz Allen technical staff will be provided with and required to read the technical approach, work plan, QMP, R5 QA Project Plan, site SAP, Health and Safety Plan (HSP) and SOPs. Each member of the technical staff must demonstrate proficiency with their assigned duties to include the preparation of associated documentation.

Field personnel will be certified and current in the Occupational Safety and Health Administration (OSHA) Hazardous Material Site Worker Training (40-hour initial training and 8-hour annual refreshers).

ELEMENT 5: QUALITY ASSURANCE OBJECTIVES FOR MEASUREMENT DATA

The scope of work under this task consists of performing soil sampling on public and private parcels in the City of East St. Louis, east of the Solutia site. Booz Allen technical staff will perform surface soil sample collection. Samples will be collected for PCB homologs analysis. Booz Allen technical staff will ship samples collected during the fieldwork via FedEx overnight shipping to ALS Rochester. ALS Rochester has provided a SOP for PCB Homologs containing QA objectives.

5.1 PROJECT-SPECIFIC QA OBJECTIVES

The sampling data will be used by EPA to determine whether PCB contamination is present in surface soils adjacent to the Site. If the sampling data satisfies all of the quality objectives for precision and accuracy specified in this SAP, including reporting limits that are below the associated screening levels for each parameter, it is inferred that the data will be adequate for the purposes of this project. Analytical samples will be evaluated against the EPA Regional Screening Levels. It will be assumed that the data are valid for potential use in determining a release or identifying a potential risk, at EPA's discretion.

QA/QC samples will be prepared and analyzed in accordance with EPA requirements, as outlined in Section 6.2 of this SAP.

5.2 ANALYTICAL QA OBJECTIVES

ALS's SOP SOC-680r7 based on EPA Method 680 will provide adequate precision, accuracy, and reporting limits (RLs) for this project. Table 5-1 describes these criteria.

Table 5-1. Reporting Limits and Quality Control Acceptance Criteria

PARAMETER	ALS SOP	UNITS	MDL	RL	ACCURACY (Lower %-Upper %)	PRECISION (%RPD)
Momochlorobiphenyls, Total	SOC-680 Rev. 7	ug/kg	0.203	0.33	10 - 108	30
Dichlorobiphenyls, Total	SOC-680 Rev. 7	ug/kg	0.16	0.33	13 - 121	30
Trichlorobiphenyls, Total	SOC-680 Rev. 7	ug/kg	0.166	0.33	25 - 118	30
Tetrachlobiphenyls, Total	SOC-680 Rev. 7	ug/kg	0.154	0.67	19 - 119	30
Pentachlorobiphenyls, Total	SOC-680 Rev. 7	ug/kg	0.225	0.67	15 - 168	30
Hexachlorobiphenyls, Total	SOC-680 Rev. 7	ug/kg	0.26	0.67	10 - 180	30
Heptachlorobiphenyls, Total	SOC-680 Rev. 7	ug/kg	0.357	1.0	15 - 181	30
Octachlorobiphenyls, total	SOC-680 Rev. 7	ug/kg	0.408	1.0	25 - 150	30
Nonachlorobiphenyls, Total	SOC-680 Rev. 7	ug/kg	0.574	1.3	30 - 130	30
Decachlorobiphenyls, Total	SOC-680 Rev. 7	ug/kg	1.137	1.7	39 - 137	30

MDL Method Detection Limit
RL Reporting Limit
RPD Relative Percent Difference
ug/kg micrograms per kilogram

5.3 NON-DIRECT MEASUREMENTS

Non-direct measurements will not be required for this project.

ELEMENT 6: SAMPLING PROCEDURES

Booz Allen will be responsible for the collection of soil samples and two equipment blanks. It is estimated that a maximum of 22 composite soil samples, including QC samples, will be analyzed for PCB Homologs. Booz Allen will perform the collection of all samples.

Booz Allen SOPs applicable to field activities that are to be conducted by Booz Allen are listed in Table 6-1. All field sampling activities will be conducted in accordance with applicable Booz Allen SOPs, as described in Table 6-1.

Table 6-1. Technical SOPs

DCN	TITLE
T-1	Field Measurement & Test Equipment
T-2	IDW Management
T-3	Equipment Decontamination
T-12	Soil Sampling
T-17	Sample Management
M-8	Readiness Review
M-15	Field Documentation

6.1 SAMPLING METHODS

Booz Allen is responsible for collecting soil from locations selected prior to the sampling event based upon previous sampling results. These locations are listed in Table 6-2. All on-site personal will be in Level D Personal Protective Equipment (PPE) at all times.

At the completion of the sampling activities of the day, a Booz Allen on-site representative will place samples into coolers, seal the coolers with custody seals, and handle them with proper chain of custody procedures as described in the REPA5 QMP. The samples collected for the day will be packaged in a cooler, sealed with custody seals, and shipped to ALS Rochester via FedEx for overnight delivery. Booz Allen will sign the chain of custody upon sample delivery or shipping relinquishing custody.

Sampling methods for soil for this sampling event were derived from the Booz Allen SOPs listed in Table 6-1. Sample preservation, containers, and holding times for all samples collected were specified by ALS's SOP SOC-680r7 which Booz Allen has retained a copy.

Table 6-2. Proposed Soil Sample Locations

SAMPLE ID	PROPERTY OWNER	TARGET PARAMETERS
SS-01	Solutia	PCBs
SS-02	McCalip	PCBs
SS-03	Ivory, Greer, Williamson	PCBs
SS-04	Paul	PCBs
SS-05	Solutia	PCBs
SS-06	City of East St. Louis	PCBs
SS-07	City of East St. Louis	PCBs
SS-08	City of East St. Louis	PCBs
SS-09	St. Clair C. Mental Health Center	PCBs
SS-10 (MS/MSD)	City of East St. Louis	PCBs
SS-11	City of East St. Louis	PCBs
SS-12	Striggs and Glynder	PCBs
SS-13	Davis	PCBs
SS-14	City of East St. Louis	PCBs
SS-15	City of East St. Louis	PCBs
SS-16	Community Development Consultation	PCBs
SS-17	City of East St. Louis	PCBs
SS-18	Comprehensive Mental Health Center	PCBs
SS-19	City of East St. Louis	PCBs
SS-20	TBD	PCBs
SS-21 (Dup of SS-03)	City of East St. Louis	PCBs
SS-22 (Dup of SS-16)	Community Development Consultation	PCBs
EB-1	NA	PCBs
EB-2	NA	PCBs

6.1.1 Soil Sample Collection

Booz Allen field personnel will collect composites surface soil samples using a hand auger and disposable sampling equipment. Surface soils will be collected from approximately 0 to 6 inches bgs. The composite samples will consist of five aliquots per sample. For each composite, five hand auger locations (A, B, C, D, and E) will be advanced in a linear pattern with a separation distance of approximately 5 feet between the locations. The five aliquots will be place in a mixing bowl and homogenized prior to sample collection. GPS coordinates will be recorded at each hand auger location.

Add information about contingency location if access not obtained, if along ROW then a linear pattern, otherwise, the composit should be collected in a circular pattern with some rule of thumb for spacing.

A maximum of 22 composite soil samples, including QC samples, will be collected during these sampling activities. Filled sample containers will be labeled, bagged, and placed into coolers containing ice. Booz Allen field team leader will be responsible for the sample holding and transport.

6.2 FIELD QC SAMPLES

Field QC samples to be collected during this sampling event include field duplicate samples, matrix spike/matrix spike duplicate (MS/MSD) samples, and equipment blanks. All field QC samples will be collected at random sampling locations as determined by the Booz Allen field team leader.

Field duplicates will be collected in the same manner to collection of the primary or parent (?) samples. Field duplicates are collected to demonstrate the reliability of the overall sampling system, which includes the field conditions as well as the sampling equipment, personnel, and procedures. Hence, field duplicate pairs will be collected consecutively on the same day and by the same personnel using the same equipment, procedures, and sample containers. Field duplicates will be collected at a frequency of at least ten percent (one per ten samples per media) for all soil analytes. Field duplicate samples are a separate duplicate and cannot be replaced by a laboratory-generated duplicate. Each field duplicate will be assigned a unique sample number and submitted blind to the laboratory.

Sufficient sample material will be collected and provided to the laboratory so that it can prepare MS/MSD samples at a frequency of at least five percent (one per 20 samples per media) for all soil analytes.

Equipment blanks will be prepared by pouring deionized, distilled water over decontaminated sampling equipment (i.e., hand auger); the water will then be collected in sample containers and submitted for analysis for all soil analytes at a frequency of one per 20 samples per medium each day a decontamination event is carried out. The objective of the equipment blank is to provide a laboratory analytical check on possible sources of contamination of a sample that may be related to equipment decontamination and sample handling procedures.

6.3 SAMPLE CONTAINERS AND COOLERS

Booz Allen will obtain pre-cleaned sample containers from ALS Rochester. ALS will prepare a complete set of sample containers and coolers and ship the containers to Booz Allen in advance of the sampling event. A sufficient number of sample containers will be obtained so that field QC samples may be collected. Booz Allen will be prepared for the collection of up to 22 soil samples including field QC samples based on the information provided to Booz Allen by the EPA TA. Table 6-3 below lists sample container requirements for the specified analyses.

Table 6-3. Sample Preservation, Containers, and Holding Times

NAME	ALS SOP	CONTAINER/ PRESERVATION	MINIMUM SAMPLE VOLUME	MAXIMUM HOLDING TIME
PCBs (soil)	SOC-680r7	4 oz wide glass jar, Cooled to < 6° C	2 oz	Extract within 7 days Analyze within 40 days of extraction

NAME	ALS SOP	CONTAINER/ PRESERVATION	MINIMUM SAMPLE VOLUME	MAXIMUM HOLDING TIME
PCBs (water)	SOC-680r7	1 liter narrow mouth amber glass bottle, Cooled to < 6° C	1 liter	Extract within 7 days Analyze within 40 days of extraction

6.4 EQUIPMENT DECONTAMINATION

Decontamination of non-disposable sampling equipment will be conducted as prescribed in REPA5 SOP T-3: *Equipment Decontamination* to assure the quality of samples collected. Sampling equipment that comes in contact with potentially contaminated materials will be decontaminated. Disposable equipment intended for one time use will not be decontaminated but will be packaged for appropriate disposal.

6.5 IDW MANAGEMENT

Booz Allen Hamilton will utilize disposable sampling equipment, scoops and bowls. Water from decontamination of the hand auger will be returned to the ground at each sampling location. This IDW will be managed as prescribed in REPA5 SOP T-2: *IDW Management*.

ELEMENT 7: CUSTODY PROCEDURES

Booz Allen field personnel will take responsibility for sample identification, handling, management, documentation, document control, and custody.

7.1 SAMPLE IDENTIFICATION

Booz Allen will provide the sample labels and chain-of-custody forms for all samples to be collected during this sampling event. Each sample container will be labeled and dated. Each sample will be identified and labeled according to a confidential letter code for the facility and based on the location it was collected; for instance, the surface soil sample collected from location 1 will be labeled "SS-01." SS in the sample number indicates a surface soil sample. The sample ID number for the field duplicates will use the next corresponding numerical identification and will be noted in the field log book. Once assigned, the sample ID number will be included on the sample label and referenced on the chain-of-custody form, the field logbook, and all data reports related to the sample.

The field personnel will affix a label to each sample container before collecting the sample. Information on the sampling labels will include the sample ID number, name or initials of the sampler, chemical/physical preservative used, analyses requested, date/time collected, and type of sample (i.e., grab or composite). Sample identification will be the responsibility of Booz Allen field personnel during sampling activities.

7.2 SAMPLE DELIVERY

Samples will be shipped via FedEx to ALS Rochester at the completion of the sampling event. Ms. Roxanne Olson will serve as the primary point of contact (POC) at ALS Rochester for sample delivery. At least one week prior to the first day of sampling, Ms. Olson will be contacted at (801) 266-7700 to discuss the sampling event and sample delivery.

The primary POC for sample delivery will be the Booz Allen field team leader, who will also have primary responsibility for sample handling.

7.3 SCHEDULING

The Booz Allen Task Order Manager (TOM) and field team leader will coordinate the scheduling of sample collection with the laboratory POC so as to minimize sample transport and holding time. No samples will be collected on Friday afternoon and the lab is closed on weekends.

7.4 SAMPLE CUSTODY

Booz Allen field personnel will ensure the integrity and security of all samples under REPA5 control using a stringent chain-of-custody protocol, as specified in the R5 QA Project Plan. Chain-of-custody, which begins with sample collection and terminates upon sample disposal, will be documented throughout the life cycle of each sample. A chain-of-custody form will be initiated during sample collection and will include the sample numbers, date and time of

collection, sampling locations, name of the person who collected the samples, preservatives used, and the analyses required. Each sample transfer will then be documented on the chain-of-custody form.

Booz Allen will ship samples via FedEx overnight delivery. Booz Allen will sign the chain-of-custody form under "Relinquished by," and place it inside the cooler prior to shipping. An ALS representative will sign under "Received by" upon sample arrival. Under no circumstance is there to be a break in custody.

7.6 SAMPLE DISPOSITION

ALS Rochester will be responsible for the proper disposal of all samples.

7.7 SHIPPING

Samples will shipped via FedEx overnight delivery by Booz Allen field personnel to the ALS Rochester.

7.8 DOCUMENTS AND RECORDS

Project documents and records will be prepared or generated, reviewed, approved, and controlled as prescribed in Section 2.5 of the QMP and in accordance with the direction received from EPA.

7.8.1 Field Notebooks

Field notes to document sampling activities will be recorded by Booz Allen using indelible black or blue ink in permanently bound notebooks with numbered pages. The person recording the notes will sign and date the bottom of every page in the field notebook. Changes will be crossed out with a single line so that the original text remains legible; the change will be initialed and dated. Unused portions of logbook pages will be crossed out, signed, and dated by the assigned individual at the end of each workday.

The field notes will include the following information, as appropriate for each task:

- Location, date, and time
- Personnel performing the activity
- Type of PPE used
- Weather conditions
- The numerical value and units of each measurement
- Sample type and sample collection method
- Description of sample location material (i.e., color, odor, clarity)
- Sample numbers

Booz Allen field notebooks will be labeled with the contract name, the name of the individual to whom the notebook has been assigned, and sequential notebook number. Upon contract closeout, used field notebooks will be archived with the contract files.

7.8.2 Field Forms

Sample-specific information will be recorded on separate chain-of-custody forms and referenced in the field notebook. Booz Allen SOPs provide instructions and define responsibilities for completing and archiving each form.

7.8.3 Photographs

Photographs will be taken by Booz Allen staff to document field activities when required. In accordance with the EPA National Enforcement Investigation Center (NEIC) *Multi-Media Investigation Manual*, March 1992, the following information will be recorded in the Booz Allen and GSG technical staff's field notebooks as the photographs are taken:

- Name of photographer
- Date, time, location, and direction the photograph was taken
- Description of the photograph
- Aperture setting and shutter speed
- Special lenses, films, or other image enhancing techniques
- Reason for taking the photograph
- Sequential number of the photograph and the film roll number.

After the photograph is developed, the information recorded in the field notebook will be transferred to the back of each picture. Film used for aerial photography, confidential information, or enforcement investigations require chain of custody documentation, (e.g., logbook notations and receipts).

7.8.4 Analytical Data Reports

Analytical data reports will be generated by ALS Rochester and submitted to Booz Allen and EPA within 20 days of the sample delivery. These reports will contain all analytical data results, calibrations, and a case narrative for each sample method, as well as any additional information used in the generation of the data.

7.9 FINAL EVIDENCE FILES

The final evidence file will include the REPA deliverables, site plans and procedures, field logbooks, completed field forms, photographs, field data, and facility documents provided for review or as a source of information. The Booz Allen TOM will retain these files until project closeout. At project closeout, Booz Allen will provide EPA with a list of the materials in the file and return to EPA copies of any and all documents requested from the list. The remaining materials will be packaged and shipped to the Booz Allen offices in McLean, Virginia for archiving in accordance with the established protocols for the REPA5 contract.

ELEMENT 8: CALIBRATION PROCEDURES AND FREQUENCY

Booz Allen will not use any equipment in the field that requires calibration of any type. The PID will be calibrated by the supplier prior to the sampling activities.

ALS Rochester will implement the requisite calibration procedures at the required frequencies for each analysis as prescribed in ALS Rochester internal SOPs.

ELEMENT 9: ANALYTICAL PROCEDURES

ALS Rochester will follow routine analytical requirements and procedures during this project. The sample preparation and analysis methods that will be used are listed in Table 9-1.

Table 9-1. Preparation and Analysis Methods at ALS Rochester

ALS SOP #	PARAMETER	PREPARATORY AND ANALYTICAL METHOD
SOC-680r7	PCB Homologs	Gas Chromatography/Mass Spectrometry

ELEMENT 10: INTERNAL QUALITY CONTROL CHECKS

Routine QC procedures anticipated to be employed under the REPA5 contract are described in detail in the R5 QA Project Plan.

Field QC procedures will include the implementation of field readiness reviews as prescribed in *REPA SOP M-8: Readiness Review*.

ELEMENT 11: DATA REDUCTION, VALIDATION, AND REPORTING

Booz Allen will provide a sampling report describing the sampling event, presenting field data and observations and summarizing the analytical results. Booz Allen has not been requested to perform data validation.

Add partial validation per the earlier SAP.

"25% of the samples with PCB detections approaching or greater than one"

ELEMENT 12: PERFORMANCE AND SYSTEM AUDITS

Booz Allen's overall assessment program is described in the REPA5 QMP. Element 4 of the R5 QA Project Plan supplements the requirements of the QMP and further addresses the assessment tools that are most relevant and specific to environmental sampling and analysis: technical systems audits (TSA) of sampling systems, analytical and testing systems, and data management and validation systems. TSAs are used to verify the effectiveness of and compliance with the REPA5 QMP and R5 QA Project Plan. No TSA is anticipated for this sampling event.

ELEMENT 13: PREVENTIVE MAINTENANCE

Field equipment will be appropriate and approved for intended uses. The procurement and handling of quality-affecting equipment will be controlled to ensure initial and continued conformance with applicable technical requirements and acceptance criteria. Details regarding preventive maintenance of field equipment can be found in the R5 QA Project Plan.

13.1 EQUIPMENT USE AND MANAGEMENT

Equipment will be selected so as to ensure that it is of the proper type, size, tolerances, and sensitivity range to support its intended use. REPA5 SOP T-1: *Field M&TE* provides calibration, maintenance, and operation instructions for routine field M&TE.

Sample collection and storage equipment will be cleaned, stored, and handled using the necessary precautions against cross-contamination, corrosion, and damage. Table 13-1 provides restrictions for field equipment selection and use.

Table 13-1. Field Equipment Selection and Use

EQUIPMENT	USE	RESTRICTIONS
Gloves, coveralls, face mask, safety goggles, safety shoes, hard hat, portable eyewash, fire extinguisher, first aid kit	PPE	Compatible with site conditions and investigations
Disposable towels, trash bags	Clean sampling equipment	Properly disposed
Sample containers	Contain samples	Compatible with analyses of concern and acceptable to ALS Rochester, as applicable
Level D PPE	Protect sampling personnel from exposure to site chemicals	Compatible with site conditions and investigations
Sample delivery containers (i.e., coolers)	Contain sample containers for transport from the field to the laboratory	Properly cleaned prior to use
Air monitoring equipment (PID)	Air monitoring for safety of sampling personnel	Properly calibrated
Global Positioning System	Record sample locations	Weather may cause service issues

13.2 INSPECTION AND TESTING

Sample collection and storage equipment will be cleaned, stored, and handled using the necessary precautions against cross-contamination, corrosion, and damage. Equipment, parts, or components that do not meet specifications (i.e., nonconforming items) will be identified in a

manner that is easily recognized. These items will be controlled so as to prevent their inadvertent use or installation.

13.3 PREVENTIVE AND REMEDIAL MAINTENANCE

All field and laboratory equipment will be maintained on routine preventive maintenance schedules. Preventive and remedial maintenance will be performed and verified by qualified personnel and in accordance with approved procedures and manufacturer's recommendations.

13.4 STORAGE AND DISPOSAL

The Booz Allen field team leader will ensure the secure and appropriate storage and/or disposal of project equipment and materials.

ELEMENT 14: SPECIFIC ROUTINE PROCEDURES USED TO ASSESS DATA QUALITY

Booz Allen's protocols and responsibilities for reporting and implementing procedures used to assess data quality are defined in the R5 QA Project Plan. Booz Allen will collect surface soil samples during this sampling event. Booz Allen will not assess the quality of the data for this project.

ELEMENT 15: CORRECTIVE ACTION

Booz Allen's protocols and responsibilities for reporting and implementing corrective actions are defined in the R5 QA Project Plan.

ELEMENT 16: QUALITY ASSURANCE REPORTS TO MANAGEMENT

The type and routine frequency of project level REPA5 quality system reports to management are defined in the R5 QA Project Plan.

APPENDIX A – PROJECT SOIL SAMPLES TYPE AND QUANTITY

MATRIX	ANALYTE	ANALYTICAL METHOD	NUMBER OF SAMPLES	QC SAMPLES					TOTAL # OF SAMPLES
				EQUIPMENT BLANK	FIELD DUPLICATES	TRIP BLANK	MS	MSD	
Soil	PCBs	EPA 680	20	2	2	0	1	1	26

Attachment 1
Figure 1 – Sampling Locations Map